

VZCZCXYZ0289  
PP RUEHWEB

DE RUEHRL #0264/01 0631709  
ZNR UUUUU ZZH  
P 031709Z MAR 08  
FM AMEMBASSY BERLIN  
TO RUEHC/SECSTATE WASHDC PRIORITY 0586  
INFO RUEHZN/ENVIRONMENT SCIENCE AND TECHNOLOGY COLLECTIVE  
RUCNFRG/FRG COLLECTIVE  
RUEHFR/AMEMBASSY PARIS 9434  
RUEHBS/USEU BRUSSELS

UNCLAS BERLIN 000264

SIPDIS

SENSITIVE

SIPDIS, STATE FOR EUR/AGS, OES, EUR/ERA AND EB/IFD/OMA

E.O. 12958: N/A

TAGS: [EAIR](#) [ECON](#) [EINV](#) [ETRD](#) [PGOV](#) [PREL](#) [TSPA](#) [EUN](#) [FR](#) [GM](#)

SUBJECT: MUNICH SATELLITE NAVIGATION SUMMIT: WORLDWIDE GNSS  
UPDATES

REF: A. 07 MUNICH 652

[B](#). BERLIN 142

[C](#). BRUSSELS 310

[D](#). BERLIN 247

-----  
SUMMARY  
-----

[1](#)1. (SBU) REPRESENTATIVES FROM RUSSIA, CHINA, JAPAN, INDIA, AND AUSTRALIA PRESENTED UPDATES ON DEPLOYMENT OF GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) AT THE 6TH ANNUAL MUNICH SATELLITE AND NAVIGATION SUMMIT HELD FEBRUARY 19-21, 2008. WITHIN THE NEXT TWO YEARS, RUSSIA'S GLONASS PROGRAM IS PROJECTED TO REACH FULL OPERATIONAL CAPABILITY (FOC) AND CHINA'S COMPASS PROGRAM AIMS TO ACHIEVE COMPLETE REGIONAL COVERAGE. JAPAN AND INDIA CONTINUE TO DEVELOP REGIONAL SYSTEMS. WHILE INDIA DESIRES A PARTNERSHIP WITH GLONASS, JAPAN IS FORMING A PARTNERSHIP WITH GPS AND POSSIBLY INTERESTED IN A FUTURE PARTNERSHIP WITH GALILEO. AUSTRALIA EXPRESSED NO INTEREST IN DEVELOPING AN INDIGENOUS GNSS AND IS FOCUSING INSTEAD ON DEVELOPMENT OF GNSS DATA END-USER APPLICATIONS AND MULTI-GNSS RECEIVER TECHNOLOGY. END SUMMARY.

-----  
RUSSIA: GLONASS UPDATE  
-----

[1](#)2. (U) SERGEY REVNIVYKH, DIRECTOR OF THE SATELLITE NAVIGATION DEPARTMENT IN THE RUSSIAN FEDERAL SPACE AGENCY'S MISSION CONTROL CENTER, PROVIDED AN UPDATE ON THE GLONASS PROGRAM. HE EMPHASIZED THAT GLONASS IS ON SCHEDULE TO ATTAIN A COMPLETE CONSTELLATION OF 24 SATELLITES (GLONASS-M) BY THE END OF 2009 AND HAS RECEIVED FUNDING FOR A PROGRAM EXTENSION TO 2020.

LAUNCH UPDATES

[1](#)3. (U) REVNIVYKH STATED THAT THERE ARE CURRENTLY 16 SATELLITES IN THE CONSTELLATION (THREE GLONASS AND 13 GLONASS-M, OF WHICH 14 ARE HEALTHY) WITH PLANS TO LAUNCH SIX MORE GLONASS-M SATELLITES THIS YEAR. THIS YEAR'S LAUNCHES WILL CONSIST OF TWO BLOCKS OF THREE GLONASS-M SATELLITES EACH. THE FIRST, BLOCK 38, IS SCHEDULED TO OCCUR IN SEPTEMBER. BLOCK 39 IS SCHEDULED TO LAUNCH IN NOVEMBER. BY YEAR'S END, REVNIVYKH EXPECTS 18 HEALTHY GLONASS-M SATELLITES WILL BE IN GEOSYNCHRONOUS ORBIT.

GLONASS GOALS

[1](#)4. (SBU) REVNIVYKH STRESSED THE DUAL PURPOSE OF GLONASS ON THE PROVIDER LEVEL: TO PROTECT NATIONAL SECURITY AND TO

PROMOTE ECONOMIC DEVELOPMENT. HE ADDED THAT GLONASS WILL BE FREE OF CHARGE AND THAT RUSSIA ENCOURAGES USE-COOPERATION OF GLONASS THROUGHOUT THE WORLD, WITH SPECIAL EMPHASIS ON THE MIDDLE EAST, AUSTRALIA, AND LATIN AMERICA.

#### GLONASS MODERNIZATION

15. (SBU) REVNIVYKH HIGHLIGHTED KEY ASPECTS OF GLONASS MODERNIZATION, CITING BETTER POSITIONAL ACCURACY, TIME REFERENCE ACCURACY, AND COMPATIBILITY AND INTEROPERABILITY (C&I). THE KEY COMPONENTS OF GLONASS MODERNIZATION ARE SIGNAL MODERNIZATION AND THE USE OF FREQUENCY DIVISION MULTIPLE ACCESS (FDMA) AND CODE DIVISION MULTIPLE ACCESS (CDMA) SIGNAL TECHNOLOGY. IN RESPONSE TO A QUESTION REGARDING WHICH SPECIFIC SIGNALS WILL BE USED WITH CDMA, REVNIVYKH STATED THAT SUCH INFORMATION WOULD BE DISCUSSED AT THE INTERNATIONAL SATELLITE NAVIGATION FORUM IN MOSCOW, RUSSIA ON APRIL 7-8, 2008.

#### POSSIBLE GLONASS COOPERATION WITH INDIA

16. (SBU) AS PART OF RUSSIA'S AGGRESSIVE PLAN TO ACHIEVE FOC BY THE END OF YEAR 2009, REVNIVYKH SAID, RUSSIA IS CONSIDERING THE USE OF INDIAN ROCKETS FOR GLONASS-M DEPLOYMENTS.

#### ----- CHINA: COMPASS (BEIDOU-2) AND GALILEO COOPERATION -----

17. (SBU) DR. JING GUIFEI, HEAD OF THE NAVIGATION DIVISION OF THE NATIONAL REMOTE SENSING CENTER CHINA (NRSCC), PRESENTED AN UPDATE ON THE CHINESE COMPASS GNSS PROGRAM. GUIFEI STATED THAT THE COMPASS GOAL IS TO ACHIEVE A COMPLETE GLOBAL CONSTELLATION OF 35 BEIDOU-2 SATELLITES (30 IN MEDIUM EARTH

ORBIT (MEO) AND 5 IN GEO-STATIONARY ORBIT). GUIFEI ADDED THAT THE COMPASS REGIONAL PROGRAM IS FULLY FUNDED AND THE GLOBAL PROGRAM FUNDING IS STILL "UNDER DISCUSSION."

#### SYSTEM DEVELOPMENT

18. (SBU) GUIFEI BROKE DOWN THE BEIDOU-2 PROGRAM SYSTEM DEVELOPMENT INTO TWO STEPS. THE FIRST STEP IS AIMED AT COMPLETING REGIONAL SERVICES (RELATED TO THE FIVE MEO SATELLITES). THE SECOND WILL FOCUS ON COVERING ASIA "MAYBE BY THE END OF 2009" AND BEYOND THAT COMPLETE GLOBAL COVERAGE.

GUIFEI PRESENTED NO SPECIFIC INFORMATION REGARDING TIMELINES OF COMPASS PROGRAMMATIC MILESTONES. GUIFEI SAID THAT COMPASS WILL PROVIDE TWO SERVICES, AN OPEN SERVICE FREE TO THE PUBLIC AND AN AUTHORIZED SERVICE FOR USE BY THE CHINESE MILITARY. GUIFEI EXPLAINED FURTHER THAT THE OPEN SERVICE WILL HAVE A POSITION ACCURACY OF LESS THAN 20 METERS, A VELOCITY ACCURACY OF 0.2 METERS PER SECOND AND A TIME ACCURACY OF 50 NANoseconds. GUIFEI EMPHASIZED THE AUTHORIZED SERVICE IS DESIGNED TO BE AVAILABLE IN "COMPLEX SITUATIONS," I.E., MILITARY SITUATIONS. GUIFEI ADDED THAT THE AUTHORIZED SERVICE WILL HAVE AN ENHANCED POSITIONAL ACCURACY OF LESS THAN 1 METER.

#### LATEST SATELLITE LAUNCH TO SECURE FREQUENCY FILLINGS

19. (U) GUIFEI SAID THE MOST RECENT COMPASS GEO-STATIONARY MEO SATELLITE (LAUNCHED IN APRIL 2007) IS THE COMPASS PROGRAM'S NEWEST SATELLITE. HE ADDED THAT THE INTENDED USE OF THIS GEO-STATIONARY SATELLITE IS FOR IN-ORBIT-VALIDATION (IOV) AND TO SECURE FREQUENCY FILLINGS. GUIFEI SAID THE TECHNOLOGY ON THIS SATELLITE IS ABLE TO ACHIEVE A POSITIONAL ACCURACY OF LESS THAN 10 METERS.

#### FREQUENCY PLAN

110. (SBU) GUIFEI SHOWED A CHART LISTING FOUR COMPASS CARRIER FREQUENCIES (SHOWN BELOW). THE CHART DISPLAYED A FREQUENCY DOMAIN DIAGRAM INCLUDING GPS, GLONASS, AND GALILEO FREQUENCY SPECTRUMS. THE CHART SHOWED A STRIKING OVERLAP BETWEEN COMPASS AND GALILEO FREQUENCIES. WHEN ASKED HOW EXACTLY CHINA INTENDS TO ASSURE FREQUENCY COMPATIBILITY WITH OTHER

GNSS, GUIFEI GAVE A VERY SHORT RESPONSE SAYING ONLY THAT THIS IS A "BIG ISSUE" THAT IS STILL "UNDER DISCUSSION."

-- B1: 1561.098 2.046 MHZ  
-- B1-2: 1589.742 12 MHZ  
-- B1: 1207.140 12 MHZ  
-- B1: 1268.520 12 MHZ

CHINA DESIRES TO STAY ACTIVE WITH GALILEO RESEARCH AND DEVELOPMENT

¶11. (SBU) YIN JUN, DEPUTY DIRECTOR GENERAL OF HIGH AND NEW TECHNOLOGY DEVELOPMENT AND INDUSTRIAL DEPARTMENT WITHIN THE CHINESE MINISTRY OF SCIENCE AND TECHNOLOGY (MOST), GAVE A PRESENTATION ON CHINA'S COOPERATION WITH GALILEO. SINCE 2003, JUN SAID, CHINA HAS INVESTED 70 MILLION EURO FOR GALILEO IOV AND 35 MILLION EURO TO SUPPORT GALILEO APPLICATIONS. HE MENTIONED "NUMEROUS OTHER CONTRACTS" THE CHINESE HAVE SIGNED TO SUPPORT GALILEO RESEARCH AND DEVELOPMENT. ALTHOUGH CHINA IS COMMITTED TO DEVELOPING ITS OWN INDEPENDENT GNSS, JUN POINTED OUT, CHINA IS -- AND HAS LONG BEEN -- SUPPORTIVE OF THE GALILEO CONSTRUCTION THROUGH FOC AND WOULD LIKE TO REMAIN INVOLVED POST 2013. ASKED ABOUT FREQUENCY OVERLAY ISSUES WITH COMPASS AND GALILEO, JUN RESPONDED THAT CHINA IS STILL TRYING TO RESOLVE THIS PROBLEM WITHIN CHINA-EU WORKING GROUPS AND EXPRESSED CONFIDENCE THAT FURTHER DISCUSSIONS WOULD LEAD TO A RESOLUTION OF THE PROBLEM.

-----  
JAPAN: QZSS UPDATE  
-----

¶12. (U) SATOSHI KOGURE, AN ASSOCIATE ENGINEER AT THE JAPAN AEROSPACE EXPLORATION AGENCY (JAXA), PRESENTED AN UPDATE OF JAPAN'S REGIONAL QUASI ZENITH SATELLITE SYSTEM (QZSS), A THREE SATELLITE REGIONAL TIME TRANSFER SYSTEM DESIGNED TO AUGMENT GPS COVERAGE OVER JAPAN. THESE SATELLITES WILL BE PLACED IN A PERIODIC HIGHLY ELLIPTICAL ORBIT (HEO) TO ALLOW FOR LONG DWELL TIME OVER THEIR INTENDED REGIONAL AREA OF COVERAGE.

FREQUENCY PLAN

¶13. (U) KOGURE LISTED THE FREQUENCY PLAN FOR QZSS AS

FOLLOWS:

-- L1-C/A: 1575.42 MHZ  
-- L1C: 1575.42 MHZ  
-- L2C: 1227.6 MHZ  
-- L5: 1176.45 MHZ  
-- L1-SAIF: 1575.42 MHZ  
-- LEX: 1278.75 MHZ

NOTE: LEX IS A HIGH DATA RATE EXPERIMENTAL SIGNAL  
COMPATIBLE  
WITH GALILEO E6

PERFORMANCE AND COVERAGE

¶14. (U) KOGURE STATED THAT QZSS WILL UTILIZE DATA FROM THE REGIONAL QZSS AND 23 GPS SATELLITES AND PROVIDE TWO COVERAGE ZONES (A AND B). ZONE A WILL COVER JAPAN AND AUSTRALIA, WHILE ZONE B WILL COVER NORTH AND SOUTH AMERICA. KOGURE STATED THAT QZSS IS EXPECTED TO ACHIEVE POSITIONAL ACCURACY OF LESS THAN 1.6 METERS FOR 95 PERCENT OF THE COVERAGE AREAS.

COMPATIBILITY AND INTEROPERABILITY

¶15. (SBU) KOGURE STATED THAT ALTHOUGH QZSS ENJOYS A VERY CLOSE RELATIONSHIP WITH GPS IN REGARDS TO C&I, JAPAN IS ALSO COORDINATING C&I WITH GALILEO AND HOPES TO DO THE SAME WITH COMPASS. (NOTE: NO MENTION WAS MADE OF C&I COORDINATION WITH GLONASS. END NOTE)

-----  
INDIA: DEVELOPING REGIONAL GNSS IN PARTNERSHIP WITH GLONASS  
-----

¶16. (SBU) ALTHOUGH INDIAN PARTICIPANTS DID NOT MAKE A PRESENTATION, BAL KRISHNA, THE EDITOR OF "COORDINATES", A NEW DELHI BASED MAGAZINE ON POSITIONING NAVIGATION, TOLD GLOBAL AFFAIRS OFFICER THAT INDIA IS CURRENTLY DEVELOPING A REGIONAL SYSTEM IN PARTNERSHIP WITH GLONASS. KRISHNA EXPLAINED THAT THE DRIVING FORCE FOR INDIA IS TO ATTAIN GNSS INDEPENDENCE, WHICH IS ALSO WHY SO MANY COUNTRIES ARE DEVELOPING THEIR OWN GNSS. KRISHNA MENTIONED THAT THE PARTNERSHIP BETWEEN INDIA AND GLONASS IS NOT ABOUT ACQUIRING TECHNOLOGY FROM RUSSIA, BUT ABOUT HELPING THE RUSSIANS SPEED UP GLONASS DEPLOYMENT AND FACILITATING INDIAN ACCESS TO GLONASS. (NOTE: KRISHNA STRONGLY HINTED THAT THIS MEANS ACCESS TO THE GLONASS MILITARY SIGNAL. END NOTE). KRISHNA STATED THAT FOR NOW INDIA IS FOCUSED ON A REGIONAL SYSTEM, BUT THE FUTURE GOAL IS TO DEVELOP A GLOBAL SYSTEM.

ORIGINALLY INDIA DESIRED A PARTNERSHIP WITH GALILEO

¶17. (SBU) KRISHNA STATED THAT INDIA MOVED AWAY FROM ITS ORIGINAL PARTNERSHIP WITH GALILEO BECAUSE OF DELAYS ASSOCIATED WITH THE GALILEO PROGRAM. GLONASS, HE ADDED, IS SIMPLY A MORE REALISTIC OPTION FOR MEETING INDIA'S GNSS NEEDS.

-----  
AUSTRALIA: NO AMBITIONS TO DEVELOP AN INDIGENOUS GNSS  
-----

¶18. (U) CHRIS RIZOS, THE HEAD OF THE SCHOOL OF SURVEYING AND SPATIAL INFORMATION SYSTEMS AT THE UNIVERSITY OF NEW SOUTH WALES (UNSW), AND MATT HIGGINS, A PRINCIPLE SURVEY ADVISOR WITH THE DEPARTMENT OF NATURAL RESOURCES AND WATER IN QUEENSLAND AUSTRALIA DELIVERED PRESENTATIONS FOCUSED ON THE APPLICATION OF GNSS DATA TO AID AUSTRALIAN INFRASTRUCTURE PROJECTS. RIZOS, WHO EMPHASIZED THAT HE IS NOT SPEAKING ON BEHALF OF THE AUSTRALIAN GOVERNMENT, SAID THE UNSW AIMS TO FOCUS ITS RESEARCH AND DEVELOPMENT EFFORTS ON DEVELOPING MULTI-CONSTELLATION GNSS RECEIVER TECHNOLOGY.

AUSTRALIA IS WELL POSITIONED FOR VISIBILITY TO WORLDWIDE GNSS DATA

¶19. (U) RIZOS SAID AUSTRALIA IS WELL-POSITIONED DUE TO ITS VISIBILITY TO ALL CURRENT GLOBAL SATELLITE NAVIGATION SYSTEMS AND TO DEVELOPING REGIONAL SYSTEMS IN INDIA AND JAPAN. HE ADDED AUSTRALIA WOULD LIKELY NOT HAVE AN INTEREST IN DEVELOPING EVEN A REGIONAL SYSTEM DUE THE REQUIRED FINANCIAL INVESTMENT THAT WOULD NEED TO BE SHOULDERED OVER A RELATIVELY SMALL TAX BASE. RIZOS SUMMARIZED AUSTRALIA IS SIMPLY FOCUSED ON BUILDING INTERNATIONAL COOPERATION WITH OTHER GNSS PROVIDERS, EXPLORING NEW GNSS DATA AIDED INFRASTRUCTURE APPLICATIONS AND DEVELOPING GNSS RECEIVER TECHNOLOGY.

KOENIG